USDA United States Department of Agriculture | Food and Nutrition Service | Mountain Plains Region | 1244 Speer Boulevard, Suite 903 Denver, Colorado 80204-3585

Reply to Attn of: MPSF: WC-06-17-P

Subject: WIC Nutrition Education Guidance

FEB 17 2006

To: ALL WIC STATE AGENCIES

WIC State and Local Agencies are required by section 246.11 of WIC Program regulations to design nutrition education to achieve the broad regulatory nutrition education goals and to make available to participants at least a minimum number of nutrition education contacts during each certification period. However, studies have shown that WIC needs to:
1) strengthen its nutrition education component; 2) adopt a more behavioral approach in nutrition counseling; 3) be more client-oriented; and 4) focus on healthy behavior for life.

The attached guidance is intended to assist State and Local Agencies in strengthening their nutrition education service component by identifying the key elements of quality nutrition education interventions/contacts that have been determined by research to be effective.
Appendix A, *Criteria for the Development and Evaluation of Electronic-Based Nutrition Education for WIC Participants*, is designed to provide specific technical assistance to State and Local WIC Agencies by providing standardized, science-based criteria to use when designing, developing and evaluating electronic-based nutrition education for WIC participants. Appendix A contains a checklist of site evaluation questions, the criterion rationale and references.

Nutrition education is the Program benefit that sets WIC apart from the other nutrition assistance programs as a premiere public health program. Applying the elements of effective nutrition education will enable WIC agencies to provide quality, effective and relevant nutrition education that helps participants achieve and maintain optimal nutrition status.

If there are any questions, please contact Vee Ann Miller of my staff at (303) 844-0331.

RALPH E. ANZUR
Regional Director
Supplemental Nutrition Programs

Attachments

WIC Program

NUTRITION EDUCATION GUIDANCE

This guidance identifies the elements of nutrition education contacts/interventions that have been determined by research to be effective. The guidance is intended to assist State agencies in incorporating these elements into the design of nutrition education, thereby maximizing the nutrition education benefit provided to participants of the Special Supplemental Nutrition Program for Women, Infants and Children (WIC). Appendix A, *Criteria for the Development and Evaluation of Electronic-Based Nutrition Education for WIC Participants,* is designed to provide specific guidance as an assessment tool regarding electronic-based WIC nutrition education.

Background and Purpose: WIC Nutrition Education

Nutrition education is the program benefit that sets WIC apart from the other Food and Nutrition Service (FNS) nutrition assistance programs. The WIC Program is the only FNS nutrition assistance program with legislative and regulatory requirements to provide nutrition education to participants, as specified in sections 17(b)(7), 17(f)(1)(C)(x), and 17(j) of the Child Nutrition Act of 1966, as amended, and the Federal WIC regulations in sections 246.2 and 246.11. Federal regulations require that WIC nutrition education be a benefit that is available at no cost to participants, be easily understood by participants, bear a practical relationship to the participant's nutritional needs, household situation and cultural preferences, and be designed to achieve the regulatory nutrition education goals.

The goals of WIC nutrition education, as explained in section 246.11(b) of the Federal WIC regulations, are to: 1) emphasize the relationship between nutrition, physical activity, and health with special emphasis on the nutritional needs of pregnant, postpartum, and breastfeeding women, infants and children under five years of age; and 2) assist the individual who is at nutritional risk in achieving a positive change in dietary and physical activity habits, resulting in improved nutritional status and in the prevention of nutrition-related problems through optimal use of the WIC supplemental foods and other nutritious foods. WIC nutrition education also raises the awareness about the dangers of using drugs and other harmful substances during pregnancy and while breastfeeding. WIC State agencies are responsible for developing nutrition education plans that support these nutrition education goals. Finding ways to deliver effective nutrition education and achieve the nutrition education goals are critical for the continued success of the Program and supports the ongoing process of Revitalizing Quality Nutrition Services (RQNS) in WIC.

RQNS is designed to enhance and strengthen the effectiveness of WIC nutrition services. Studies have shown that WIC needs to: 1) strengthen its nutrition education component; 2) adopt a more behavioral approach in nutrition counseling; 3) be more client-oriented; and 4) focus on healthy behavior for life.[1]

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Providing Effective Nutrition Education

WIC nutrition education is effective when it results in a positive nutrition-related behavior change. Typically, the traditional WIC nutrition education contact/intervention has been a face-to-face meeting between the participant and the WIC staff. Interaction between WIC staff and participants is important because the interaction encourages participants to ask questions and to receive reliable nutrition advice that addresses their special nutrition needs. However, advances in technology coupled with limited clinic/staff resources and an increasingly diverse WIC population have resulted in Federal, State and local agencies exploring the use of emerging technology and multifaceted methods to support effective nutrition education. In the 2001 GAO report titled "Food Assistance: WIC Faces Challenges in Providing Nutrition Services", GAO recognizes the challenges in WIC for improving the use of information technology to enhance service delivery and program management.[2]

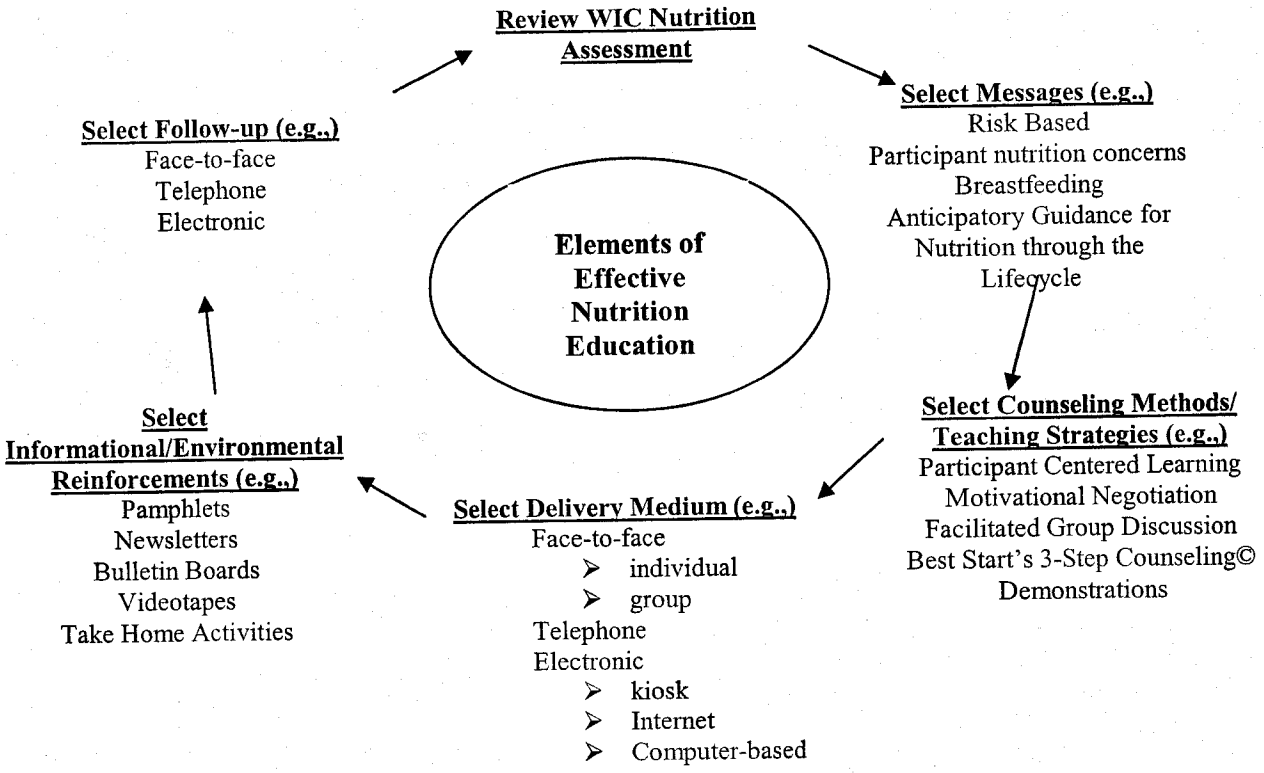
Research consistently shows that nutrition education interventions that use education methods directed at behavioral change are more likely to achieve positive results than interventions focused on dissemination of information only (i.e., lectures, handouts).[3] Behavior change also serves as an outcome measure for evaluating the effectiveness of a nutrition education contact/intervention. Although behavior change is an end goal, it is important to not underestimate the value of affecting the precursors of behavioral changes and measuring those in evaluation of nutrition education in the WIC program. Follow-up is also necessary to determine whether a change has occurred and to further assist participants in achieving and maintaining nutrition-related behavior change.[4] Current research suggests that the most effective nutrition education interventions contain components from several educational theories and/or models regardless of the delivery method or medium used.[5] (see Figure 1 for examples)

WIC Nutrition Assessment

The WIC nutrition assessment is the first step in providing quality nutrition services. The WIC nutrition assessment is used for two purposes: (1) to determine eligibility of the applicant; and (2) to serve as the basis from which all subsequent WIC nutrition services are provided. More specifically, the information gathered during the assessment process is used to assess the applicant's nutritional status and risk (associated with an increased likelihood of poor outcomes), tailor the food package, design appropriate nutrition education, and make referrals to health and social services.

FNS is developing the Value Enhanced Nutrition Assessment (VENA) initiative to assist State agencies in developing and implementing assessment policies and procedures that provide the foundation for targeted and relevant nutrition education and other WIC nutrition services that guide and support families in making healthier eating and lifestyle choices. This guidance supports the VENA philosophy.

Figure 1: Process of Delivering Effective Nutrition Education in WIC



Elements of an Effective Nutrition Education Contact/Intervention

Effective nutrition education should elicit a behavior change that will help the participant achieve and maintain a positive change in dietary and physical activity habits, resulting in improved nutritional status and in the prevention of nutrition-related problems regardless of the delivery medium. Effective nutrition education contacts/interventions should also be easily understood by participants taking into consideration participants personal and cultural preferences, educational and environmental limitations, and be consistent with the WIC Nutrition Services Standards[6] (WIC NSS). The most effective WIC nutrition education contact/intervention should incorporate the following six elements:

- A review of the WIC nutrition assessment to identify the participant's nutritional risk factors, needs and concerns;
- Messages that engage the participant in setting individual, simple and attainable goals and provide clear and relevant "how to" actions to accomplish those goals;
- Counseling methods/teaching strategies that are relevant to the participant's nutritional risk and are easily understood by the participant;
- A delivery medium that creates opportunities for participant interaction and feedback;
- Continuous support through informational/environmental reinforcements; and
- Follow-up to assess for behavior change and determine intervention effectiveness.

Reviewing the WIC Nutrition Assessment for Nutrition Education Purposes

The WIC nutrition assessment directs nutrition education by answering the questions: "What topic(s) is most important to cover at this time?", "What counseling method or teaching strategy will most effectively assist the participant to improve her health status and/or achieve a positive change in dietary habits?", "What may be the most effective way(s) to deliver the message – in person, over the phone, and/or by participating via an electronic-based lesson?", and "What reinforcements can support the nutrition education provided?" Based on the assessment, WIC staff should use critical thinking skills and professional judgment to establish the participant's nutrition education goal and determine how to best meet the participant's needs and maximize the nutrition services offered to the participant.

Nutrition Education Messages

Nutrition messages should be tailored to maximize the impact and benefit for the participant and focused towards attaining WIC's regulatory goals for nutrition education. The nutrition education offered may include a wide array of messages that are relevant to participant's nutritional risk factors and individual nutrition needs/concerns as well as emerging health issues. WIC staff use the assessment information, critical thinking skills, and professional judgment to select the most relevant and effective tailored nutrition education message(s) for the participant.

Counseling Methods/Teaching Strategies

There is no one counseling method or teaching strategy that fits the needs of all participants. Individuals vary greatly in how they learn, process, and use information and in their readiness to change. Effective nutrition education consists of counseling methods that consider multiple learning aptitudes identified during the WIC nutrition assessment process and subsequent follow-up.

Regardless of the counseling method/teaching strategy used, a characteristic that has been shown to be effective in changing behavior is interaction that engages the participant. Interaction means a two-way exchange of information. Interactive approaches to nutrition education have been shown to be effective in changing behavior and provide participants the opportunity for questions and feedback.

Interactive nutrition education can be achieved in an individual or group session. Using strategies that engage the participants in identifying individual goals or important issues as well as creating solutions that work for them will enhance the effectiveness of nutrition education.

Delivery Medium

The WIC nutrition educator may use multiple delivery media during nutrition education contacts/intervention. Although face-to-face personalized contact is considered the optimal medium for providing nutrition education, new technology such as computer-based, may allow WIC nutrition education to meet the needs of participants through a variety of delivery media while still providing an effective nutrition education contact/intervention. Any medium that incorporates the elements of an effective nutrition education and engages the participant may be appropriate in WIC.

Reinforcements of nutrition education

Informational materials and teaching aids provide the opportunity for selected nutrition messages to be repeated. Repeated exposure to a nutrition message has been shown to facilitate adoption of the message by the client. However, the use of the following reinforcements independent of other nutrition education elements is **not considered to be effective** and should not be counted as a nutrition education contact/intervention: publications/pamphlets, take-home activities/newsletters, videotapes, posters/bulletin boards/displays/health fairs and public service announcements/radio/TV advertisements.

Follow-up and Support

Follow-up should be interactive and strengthens nutrition education but does not replace a nutrition education contact/intervention. Follow-up provides an opportunity for both the nutrition educator and the participant to examine progress toward goals, to provide positive support, to identify barriers that may be hindering the participant's progress and to reassess and refine future nutrition education plans. Follow-up provides ongoing support by reinforcing nutrition education message(s) and the participants' nutrition education goal(s).

Follow-up may be incorporated during the second nutrition education contact/intervention, may occur at recertification, or be a separate activity such as during voucher pick-up, by telephone or electronic means. Recertification is an appropriate time for WIC staff to reassess participant nutrition goals to better align the tailoring of subsequent nutrition services to current needs.

Applying the Process of Effective Nutrition Education

Example 1:

The elements of effective nutrition education can be incorporated into WIC nutrition education through a variety of electronic delivery mediums, such as the Internet, computer software, kiosk and modules by including components that: direct the participant to appropriate topics based on the nutrition risk assessment; provide interaction, such as use of scenarios or quizzes; allow the participant to set goals, as well as provide specific examples on how to attain the goals; provide "take-home" tips and printable reinforcements; and, finally provide a method for follow-up via a

face-to-face meeting, or through email or by telephone, to provide support and allow for questions.

Appendix A provides a tool for use by WIC State and local agencies to assist with the design, development and evaluation of electronic-based nutrition education through the application of standardized science-based criteria.

Example 2:

The elements of effective nutrition education can also be applied via telephone. For example, the WIC nutrition educator can assess the participant's readiness to change and determine relevant nutrition messages during a telephone conference that use participant centered learning as the counseling method/teaching strategy. This combination of delivery medium and counseling method/teaching strategy allows for participant interaction, goal setting and immediate feedback. Information that reinforces the messages can be provided via mail, electronically or at the next clinic visit. An additional phone call or an in-person consultation during the next clinic visit provide opportunities for follow-up and can be used to determine the effectiveness of the initial telephone contact.

Summary

Nutrition education is the Program benefit that makes WIC a premiere public health program, setting it apart from other nutrition assistance programs. As an integral part of the WIC Program and reinforced through the process of RQNS, effective nutrition education should be designed to elicit a positive behavior change regardless of delivery method. Participant nutrition education contacts / interventions should contain all six elements described in this memorandum in order to be effective in meeting participant needs, the goals of WIC nutrition education and to be counted as a nutrition education contact.

Cited References

[1] WIC Nutrition Education Assessment Study: Final Report. United States Department of Agriculture Food and Nutrition Service Office of Analysis and Evaluation. February 1999.

[2] WIC Faces Challenges in Providing Nutrition Services: Report to Congressional Committees (GAO-02-142). United States Department General Accounting Office. December 2001.

[3]Contento IR, Randell JS, Basch CE. Review and Analysis of Evaluation Measures Used in Nutrition Education Intervention Research. *J Nutr Educ Behav* 2002; 34:2-25.

[4]Nutrition Education Approaches: Public Information Supply. Economic Research Service Consumer Use of Information/AH-715. 2004.

[5]Achterberg, C and Miller C. Is one Theory Better than Another in Nutrition Education? *J Nutr Educ Behav* 2004; 36:40-42.

[6] WIC Nutrition Service Standards (NSS). United States Department of Agriculture Food and Nutrition Service Supplemental Food Programs Division. October 2001.

References

Hughes Roger. Competencies for Effective Public Health Nutrition Practice: a Developing Consensus. *Public Health Nutrition* 2004 Aug; 7(5):683-91.

Mississippi State University Coordinated Access to the Research and Extension System (MSUCares [homepage on the Internet.] Mississippi State University Extension Service; c2001 Aug 1 [cited 2004 Jul 26]. Available from: http://msucares.com/health/health/appa1.htm

Nutrition Education Toolkit [database on the Internet]. Sacramento (CA): Women, Infants and Children (WIC) Supplemental Nutrition Program c2002 – [cited 2004 Jul 26]. Available from: http://www.wicworks.ca/gov/education/nutrition/toolkit/3_education/keyTheoriesModelsProcessesRelevantNutritionEducation

Nutrition Education Toolkit [database on the Internet]. Sacramento (CA): Women, Infants and Children (WIC) Supplemental Nutrition Program c2002 – [cited 2004 Jul 26]. Available from: http://www.wicworks.ca.gov/education/nutrition/toolKit/3_education/nutritionEdApproaches.htm

Appendix A

Criteria for the Development and Evaluation of Electronic-Based Nutrition Education for WIC Participants

Table of Contents

Criteria for the Development and Evaluation of Computer-Based Nutrition Education for WIC Participants

Overview

The Food and Nutrition Service (FNS) Special Supplemental Nutrition Program for Women, Infants and Children (WIC) has developed standardized, science-based criteria for use by State and local WIC agencies in designing, developing and evaluating electronic-based nutrition education for participants of the WIC Program. The criteria can be used during the design and development phase or to evaluate electronic-based nutrition education that is already developed and available for use or purchase.

In an attempt to find new, innovative and accessible methods for delivering nutrition education, some State and local agencies are turning to the Internet as one method of delivering nutrition education benefits to WIC participants. Applying standardized science-based criteria for the development and evaluation of electronic-based nutrition education will ensure that WIC participants receive effective, high-quality, nutrition education via this delivery method.

The criteria were developed through a comprehensive literature search of relevant material pertaining to effective online/Internet-based education, nutrition education, communication, adult/child learning and behavior change theory and Internet evaluation tools. The criteria meld what is known about communication for low-literacy audiences with more recent references on evaluation of on-line education and information for underserved populations (those with less access to technology).

Considerations for Use of Electronic–Based Nutrition Education

Currently, FNS has allowed limited Internet nutrition education to be used in remote areas that lack clinic access, that have participants who are well "connected" to the internet and have, for the most part, developed sophisticated systems for tracking, monitoring and following-up participant usage to ensure nutrition education is being delivered effectively.

Administrative Burdens -- Significant resources are required to operate, staff and manage an on-line or computerized system. Factored with other barriers associated with electronic-based nutrition education, it may be cost prohibitive for most State and local agencies.

- Tracking and monitoring requires an administrative back-end system, which can incur considerable cost.
- Staff requirements include not only the time required to input data, monitor and track usage, but may also necessitate skills that current employees may not possess.
- Nutrition information and links need to be constantly evaluated to ensure that they are up-to-date and active.
- Technical assistance and follow-up to address questions, both technical and nutrition related, and to provide feedback to participants must be available.

Participant Barriers – electronic-based nutrition education can also be difficult due to:

- Lack of consistent computer and Internet access; many participants may initially have computer/Internet access but lose it due to moving, transportation or money.
- Lack of structure; many people find it easier to follow through when engaged in a face-to-face conversation.
- Low literacy or illiteracy and discomfort with technology.

Organization

This document has three sections, the **criteria checklist** with site evaluation questions and scoring; a **rationale for inclusion of the criterion**; and a **reference section**. There are 66 questions that make up the criteria. The criteria are organized into eleven groupings including:

1. Site Content
2. Site Functionality
3. Site Design
4. Layout
5. Readability/Writing Style
6. Learning Experience
7. Type Style
8. Use of Color
9. Photos, Illustrations, Symbols
10. Non-English Site Development/Translations
11. Site Evaluation

Scoring

The criteria are written as evaluation questions with each question scored on a scale from 0 (zero) to 2. If the site meets the criterion, score it as a 2 (Yes). If the site has some elements of the criterion but needs improvement, score it as a 1 (Needs Improvement). If the site does not reflect the criterion, score it as a 0 (No). If the criterion cannot be assessed, enter CA on the rating line.

There may be some questions that are difficult to assess without background information and documentation from the site developer. For instance, assessing whether the site developer pre-tested content and messages with a sample client population prior to launching the site may not be information that is readily available on the site. Questions with a rating of CA indicate that further inquiry and discussions with the site developer is needed to determine whether the criterion is met. Each group of criterion has a sub-score. At the end of the checklist, the sub-scores are tallied for an overall score. A higher score indicates a higher level of site quality. A low score on rating as well as a high number of "CA" responses may indicate a poorer quality site.

Criteria Checklist

Site Content

CA=Cannot Assess 0= No 1=Needs Improvement 2=Yes

1. Is the purpose of the website immediately obvious to the user (clearly stated on initial website home page)? _____
   Comments:

2. Does the site identify the organization that produced the site and give contact information (phone number, address, email)? _____
   Comments:

3. Is the source of nutrition and health information clearly stated? _____
   Comments:

4. Is the information accurate and does it reflect currently recognized guidelines of practice? _____
   Comments:

5. Is the content free of spelling and grammatical errors? _____
   Comments:

6. Is the information limited to an amount that is reasonable for the intended audience? _____
   Comments:

7. Does the content show awareness of and respect for diversity, and use culturally appropriate terms and examples? _____
   Comments:

8. Does the site include dates when content was last updated? _____
   Comments:

Site Content Rating:

Add scores for questions 1-8: _____
Highest possible score: 16
Number of "CA" scores: _____

Site Functionality

CA=Cannot Assess 0= No 1=Needs Improvement 2=Yes

1. Is the speed of download for the site acceptable to users with graphics and photos downloading quickly (tested with both high-speed cable and dial-up connections)? _____
   Comments:

2. Does site work in both Internet Explorer and Netscape Navigator browsers? _____
   Comments:

3. Is the site easy to navigate, including clearly labeled Back, Home, Go To Top, Next Page icons/links? _____
   Comments:

4. Do all site links work properly? _____
   Comments:

5. Do all multimedia resources work properly (audio, video)? _____
   Comments:

6. Does the site work in "text only" (graphics turned off) mode? _____
   Comments:

Site Functionality Rating: Add scores for questions 1-6: _____
Highest possible score: 12
Number of "CA" scores: _____

Site Design

CA=Cannot Assess 0= No 1=Needs Improvement 2=Yes

1. Does the site look appealing at first glance (uncluttered pages with plenty of white space? _____
   Comments:

2. Are there brief, easy to understand instructions on how to move through the site and complete activities? _____
   Comments:

3. Do the graphics enrich the content and add to it in a logical fashion, not merely decoratively, including making the text easier to understand for low-literacy users? _____
   Comments:

4. Does the graphic design use contrast, indentation, bullets, interactive buttons, and other devices to signal main points and make the text easy to skim/read? _____
   Comments:

Site Design Rating:

Add scores for questions 1-4: _____
Highest possible score: 8
Number of "CA" scores: _____

Layout

CA=Cannot Assess 0= No 1=Needs Improvement 2=Yes

1. Does the overall site/module design seem unified and consistent from page to page in its layout? _____
   Comments:

2. Is the material logically organized into meaningful segments, sections, pages or pop-ups? _____
   Comments:

3. Are there banners, headings, subheadings or other design elements that are clear, informative, and signal what is coming next? _____
   Comments:

4. Does the material emphasize and summarize the main points? _____
   Comments:

5. Are pages laid out to minimize need for scrolling to read content? _____
   Comments:

6. Is there a navigation bar (menu) that clearly describes choices for users and appears consistently from page to page? _____
   Comments:

Layout Rating:

Add scores for questions 1-6: _____
Highest possible score: 12
Number of "CA" scores: _____

Readability/Writing Style

CA=Cannot Assess 0= No 1=Needs Improvement 2=Yes

1. Is the material written primarily in the active voice (for primary sites and any links that provide additional information and resources)? _____
   Example:
   Active voice: *Eat a variety of foods* to help your body meet its nutrient needs.
   Non-active voice: A nutritious diet consists of a variety of foods.
   Comments:

2. Is the reading level appropriate for the intended audience? _____
   Comments:

3. Are the words and sentences generally short, simple, and direct without being choppy or sacrificing meaning? _____
   Comments:

4. If technical terms and jargon are used, are they clearly explained with helpful examples? _____
   Comments:

5. Are concise words used whenever possible? _____
   Example: "Fruits *have* fiber" instead of "Fruits *contain* fiber."
   Comments:

6. Is the information supported by concrete examples? _____
   This sentence provides concrete examples: Vegetables that are deep orange, like carrots, sweet potatoes and deep green, like broccoli, collards, are good sources of Vitamin A."
   Comments:

Readability/Writing Style Rating:

Add scores for questions 1-6: _____
Highest possible score: 12
Number of "CA" scores: _____

Learning Experience (Engaging, Motivating, Supporting the User)

CA=Cannot Assess 0= No 1=Needs Improvement 2=Yes

1. Are learning outcomes defined (either as learning objectives written as part of user content or included as a "menu" option)? _____
   Comments:

2. Does the site effectively use a learning/behavior change model (such as stages of change, constructs of the health belief model, Transtheoretical Model, social cognitive theory, or theory of reasoned action and planned behavior or other) for planning the content, choices and interactivity? _____
   Comments:

3. Are there strategies to engage and involve the user (such as question and answer format, problem-solution, stories, or vignettes)? _____
   Comments:

4. Does the site provide immediate feedback to users when they complete an activity or answer questions? _____
   Comments:

5. Is the "how to" advice specific, urging behavior that is feasible and culturally appropriate for users? _____
   Comments:

6. Does the site request user information, such as food intake and preferences, in order to customize the learning experience and increase user interaction? _____
   Comments:

7. Does the site customize information and recommendations to individual users (like the MyPyramid.gov)? _____
   Comments:

8. Are users able to print hard copy of individualized information, materials, and selected site content ? _____
   Comments:

9. Are there printable materials (e.g., fact sheets, recipes, posters, eating pattern messages on a variety of items) that reinforce the on-line messages, information, and content to extend the learning experience? _____
   Comments:

10. Are there links to local resources where users can get more information or assistance (for example, Farmers Market locations, WIC retailers, food assistance organizations)? _____
Comments:

11. Does the site minimize the amount and type of keyboarding needed to move through and complete the educational activity? _____
Comments:

Learning Experience Rating: Add scores for questions 1-11: _____
Highest possible score: 22
Number of "CA" scores: _____

Type Style

CA=Cannot Assess 0= No 1=Needs Improvement 2=Yes

1. Does the site use an effective combination of readable type styles and font sizes to get good contrast between the text and the heading and titles? _____
   Comments:

2. Do the text and titles use capital letters only when capitals are needed grammatically (no text in "ALL CAPS")? _____
   Comments:

3. Does the site emphasize text by restrained use of italics, bolding, or other devises like contrast in size or color accents? _____
   Comments:

4. Are lines of text an appropriate length for easy reading (no left to right or up and down scrolling needed to read text)? _____
   Comments:

5. Does the site avoid the use of wrapping text around photos/graphics in awkward ways? _____
   Comments:

6. Does the text avoid splitting words across two lines? When headings take more than one line, does the break between lines reflect natural phrasing and avoid leaving a single word by itself on the second line? _____
   Comments:

7. Is there enough contrast between the text and the background to read everything easily, i.e., limited use of reversed out (light-colored text on a dark background)? _____
   Comments:

Type Style Rating:

Add scores for questions 1-7: _____
Highest possible score: 14
Number of "CA" scores: _____

Use of Color

CA=Cannot Assess 0= No 1=Needs Improvement 2=Yes

1. Are the colors chosen appealing to the intended audience and free from problematic cultural significance? _____
   Comments:

2. Is color used in a consistent and deliberate way to enhance the meaning and impact of the key messages and information? _____
   Comments:

Use of Color Rating: Add scores for questions 1-2 _____
Highest possible score: 4
Number of "CA" scores: _____

Photos, Illustrations, Symbols

CA=Cannot Assess 0= No 1=Needs Improvement 2=Yes

1. Are the photos, illustrations, symbols, patterns, and other visuals related to the information presented and used to reinforce key messages? _____
   Comments:

2. Are the people and activities shown in photos or illustrations contemporary and representative of the intended audience in their demographics, physical appearance, behavior, and cultural elements (free from unwanted connotations or problematic cultural significance)? _____
   Comments:

3. Are the photos, illustrations, and other images consistent in style for a uniform look? _____
   Comments:

4. Do the photos and illustrations have a high quality professional look (the images themselves, cropping, resolution is not grainy, free from clutter and other distracting details)? _____
   Comments:

5. Does the site avoid using cartoons, humor, and caricature (which may be misunderstood or offensive)? _____
   Comments:

Photos, Illustrations, Symbols Rating:

Add scores for questions 1-5: _____
Highest possible score: 10
Number of "CA" scores: _____

Non-English Site Development/Translations

CA=Cannot Assess 0= No 1=Needs Improvement 2=Yes

1. Is the site available in other languages? _____
   Comments:

2. Does the site clearly direct users to alternate versions in other languages? _____
   Comments:

3. Is translation done for meaning and ease of reading, avoiding awkwardness of literal translation from English? _____
   Comments:

4. If a translated version of the site exists, has it been evaluated by a native speaker using the evaluation criteria by someone proficient in the language and aware of the cultural sensitivities of the intended audience? _____
   Comments:

Non-English Site Development/Translations Rating:

Add scores for questions 1-4: _____
Highest possible score: 8
Number of "CA" scores: _____

Site Evaluation

CA=Cannot Assess 0= No 1=Needs Improvement 2=Yes

1. Has formative research been conducted with intended audiences to determine initial conception of communications, education strategies, messages, topic selection, and site design elements? _____
   Comments:

2. Has the site been pre-tested with the intended audience for comprehension, ease of use, cultural acceptance, and interactivity? _____
   Comments:

3. Has the site been reviewed by an appropriate professional resource prior to release (nutrition professional, providers, website designers)? _____
   Comments:

4. Has the site been evaluated post release and are the results of the evaluation available? _____
   Comments:

5. Does the site include pre and post test assessment of user knowledge, attitude and behavior? _____
   Comments:

6. Does the site include programming that collects information (users, degree of interaction, length of time on site, accuracy of completing the activities, user satisfaction with site, number of hits, etc) for site evaluation and for documenting nutrition education contacts? _____
   Comments:

7. Is there a confidentiality of information statement that explains to the user how any information collected will be used? _____
   Comments:

Site Evaluation Rating:

Add scores for questions 1-7: _____
Highest possible score: 14
Number of "CA" scores: _____

Criteria for the Development and Evaluation of Electronic-Based Nutrition Education for WIC Participants

CRITERIA SCORESHEET:

Sections (maximum possible score)	Sub Scores:	Number of "Cannot Assess" Responses
Site Content (16):		
Site Functionality (12):		
Site Design (8):		
Site Layout (12):		
Readability (12):		
Learning Experience (22):		
Type Style (14):		
Use of Color (4):		
Photos, Illustrations, Symbols (10):		
Non-English Site Development/Translations (8):		
Site Evaluation (14):		
Add sub-scores for Total Score:		
Total Possible Score: 132		

Rationale for Criteria

Site Content

1. Is the purpose of the website immediately obvious to the user?
   References: Bouch, Lazarus, McGee
   - If the content and purpose are not clearly evident for the title and other clues on the home page, users may be confused or feel that that the site is not relevant to them.

2. Does the site identify the organization that produced the site and give contact information (telephone number, address, email)?
   References: Schrock
   - Necessary in order to be able to ask questions about site development.

3. Is the source of nutrition and health information clearly stated?
   Reference: McGee
   - Necessary to ensure that reliable sources were used.

4. Is the information accurate and does it reflect currently recognized guidelines of practice?
   References: McGee, Schrock
   - Be sure of the facts. This applies not only to nutrition, health, medical, scientific and technical information, but also to contact information.

5. Is the content free of spelling and grammatical errors?
   References: Doak, McGee, Schrock

6. Is the information limited to an amount that is reasonable for the intended audience?
   References: Bouch, Marcario
   - Only 25% of the adult population is highly literate. Give readers the most important points first and last. Literacy experts suggest that information be grouped into succinct "chunks" with a clear sequence of information.

7. Does the content show awareness of and respect for diversity, and use culturally appropriate terms and examples?
   References: Macario, Shire, Lazarus
   - The research suggests that effective nutrition interventions must build on patients' social networks; appear in a visually based, interactive format; and be culturally appropriate.

8. Does the site include dates when content was last updated?
   References: Bernard, Nielsen
   - Web sites should be updated regularly as new information becomes available.

Site Functionality

1. Is the speed of download for the site acceptable to users with graphics and photos downloading quickly (tested with both high-speed cable and dial-up connections)?
   References: Bernard, Dellart, Lazarus
   - Users get frustrated with waiting for a site to download especially when there are a lot of gratuitous graphics. Placing images that do not add to the site will decrease rather than increase user satisfaction with the site. Users may also be frustrated if they do not know how long they have to wait. It is preferable to have quick download times. When this is not possible, providing adequate information about expected wait time is important.

2. Does site work in both Internet Explorer and Netscape Navigator browsers?
   References: Bernard, Lazarus

3. Is the site easy to navigate?
   References: Benway, Kinzie, Lynch, Zarcadoolas
   - Navigation buttons should be clearly labeled, i.e., Back, Home, Go To, Top, Next Page icons/links.

4. Do all site links work properly?
   References: Benway, Kinzie, Lynch, Zarcadoolas
   - Users will become frustrated if links are not maintained.

5. Do all multimedia resources work properly (audio, video)?
   References: Lazarus
   - Users will become frustrated if multimedia resources are not maintained.

6. Does the site work in "text only" mode (with graphics turned off)?
   References: Schrock
   - A Web page should be readable with graphics turned on or off or via a text-based browser.

Site Design

1. Does the site look appealing at first glance with uncluttered pages with plenty of white space?
   References: Bernard, McGee, Doak
   - The use of open space is generally more effective in organizing and grouping information than using imposed, artificial structures such as visually nested frames or bars. It is also more aesthetically pleasing. Empirical studies support the proper use of open space to increase user satisfaction with a website.

2. Are there brief, easy to understand instructions on how to move through the site and complete activities?
   References: Bernard, Zarcadoolas
   - Instructions that help users learn about the site will enhance site use.

3. Do the graphics enrich content and add to it in a logical fashion, not merely decoratively, including making the text easier to understand for low-literacy users?
   References: Lantz, Lazarus
   - Unrelated graphics that do not enrich content distract from important content and comprehension. For lower-literacy audiences, it critical that graphics directly relate to content. All illustrations, graphics, or photos must be placed near the related text/content, and when appropriate, be labeled and explained.

4. Does the graphic design use contrast, indentation, bullets, interactive buttons, and other devices to signal main points and make the text easy to skim/read?
   References: Doak, NCI-Clear & Simple, Bernard
   - Users prefer lists to be presented with bullets and spaces between each line. Cues, like circles, arrows or boxes draw the reader's eye to important information.
   - Action objects (live links, buttons, icons) should be easily identified as actionable. For example, a link button may be perceived to afford clicking because of its '3-D' or 'raised' appearance. Conversely, non-navigation objects should not look like they could be clicked in order not to 'trick' the user into thinking they are links.
   - Buttons also can act as the primary link for movement to other web pages, usually within the same website. When this occurs, text-based links often serve as a less important, secondary or supplemental link for the buttons. Normally, however, text-based links are the primary link to other internal web pages.
   - Physical appearance of objects such as icons can significantly affect navigational performance. For example, icons with abstract but simple symbols that represented concrete objects resulted in the fewest number of errors and requests for help. In addition, large and simple icons outperformed complex ones by a significant margin. Complex icons tend to clutter the screen with unnecessary information.

Layout

1. Does the overall site/module design seem unified and consistent from page to page in its layout?
   References: Bernard, Tufte
   - Organize the interface by reducing un-needed visual elements as much as possible and to reduce unnecessary visual "noise." Ensuring consistency of layout and design from page to page supports a unified layout.

2. Is the material logically organized into meaningful segments, sections, pages or pop-ups?
   References: Doak, McGee

3. Are there banners, headings, subheadings or other design elements that are clear, informative, and signal what is coming next?
   References: Benway, Doak, McGee

4. Does the material emphasize and summarize the main points?
   References: Doak, McGee
   - Summarizing main points increases comprehension of content and concepts.

5. Are pages laid out to minimize need for scrolling to read content?
   References: Bernard
   - Users often miss important information simply because they forget or are unwilling to scroll in a particular direction (either vertically or horizontally) so they may not see information outside the primary screen area. Important information should always fit within the horizontal viewing area and vertical scrolling should be kept to a minimum.

6. Is there a navigation bar (menu) that clearly describes choices for users and that appears consistently on each page?
   References: Lazarus, Bernard
   - Categorical menus are superior in search performance and satisfaction to alphabetized sitemaps. Categorical menus arranged in columns are searched faster than menus arranged in rows.

Readability/Writing Style

1. Is the material written primarily in the active voice (for primary sites and any links that provide additional information and resources)?
   Example:
   Active voice: *Eat a variety of foods* to help your body meet its nutrient needs.
   Non-active voice: A nutritious diet consists of a variety of foods.
   Reference: Doak, Lazarus
   - Active voice gives the user an action to take rather than just provide information and helps move the user into desired behaviors.

2. Is the reading level appropriate for the intended audience?
   References: Busselman, Graber, Lazarus, Schoenberger, Townsend
   - A study of patient education material from the Web evaluated for readability using the Flesch reading score and Flesch-Kinkaid reading level indicated that on average, patient information from the Web is written at a 10th grade reading level. Previous studies have shown that this readability level is not comprehensible to the majority of patients. When primary audience as limited literacy (particularly new immigrants), readability at grade 6 or lower is desirable. There are a variety of software tools available to assess the reading level of text.

3. Are the words and sentences generally short, simple, and direct without being choppy or sacrificing meaning?
   References: Lazarus, Bernard, McGee, Nielsen
   - About 11 words per line is recommended to reduce eye movement and keep the users attention. Use words that are familiar to your users. Keep sentences simple, specific, direct, and written in the active voice.

4. If technical terms and jargon are used, are they clearly explained with helpful examples?
   References: McGee
   - It is critical to minimize the use of technical terms and jargon. If such terms are used, clear explanations must be given using examples and words familiar to the intended audience.

5. Are concise words used whenever possible?
   References: Doak, Schuster, Lazarus
   Example: "Fruits *have* fiber" instead of "Fruits *contain* fiber."
   - Concise words help low literacy users understand the messages.

6. Is information supported by concrete examples?
   References: Doak, Schuster
   - For example: "Vegetables that are deep orange or dark green, like carrots, sweet potatoes, collards, and broccoli are good sources of Vitamin A."

Learning Experience (Engaging, Motivating, Supporting the User)

1. Are learning outcomes defined (either as learning objectives written as part of user content or included as a "menu" option)?
   References: Doak, Jelovsek, Smith CE
   - Base the development of education sites on established principles of teaching and learning, as well as proper identification of realistic educational goals.

2. Does the site effectively use a learning/behavior change model for planning the content, choices and interactivity (such as stages of change, constructs of the health belief model, Transtheoretical Model, social cognitive theory, or theory of reasoned action and planned behavior)?
   References: Doshi, Fahrenwald, Jelovsek, Sternberger, Lazarus, Molaison,
   - Effective communication methods, both verbal and audiovisual, are as important in computer modules as they are in face-to-face teaching. The quality of interactive questioning and the nature and timing of feedback are critical to the success of instruction by computer. Appropriate feedback can improve retention, as can the use of proper distractors in multiple-choice questions.

3. Are there strategies to engage and involve the user?
   References: Block, Campbell
   - Strategies such as question and answers, problem-solution, stories, and vignettes provide interaction which is important in effective nutrition education.

4. Does the site provide immediate feedback to users when they complete an activity or answer questions?
   References: Block, Campbell
   - Feedback can emphasize small, practical steps that move learners in a direction that is consistent with their goals and allows them to experience some success.

5. Is the "how to" advice specific, urging behavior that is feasible and culturally appropriate for users?
   References: Shire, USDA-ERS, Roberts
   - The true mission of teaching is to facilitate learning, and adult learning is enhanced by four elements: respect, building on previous experiences, immediacy of application, and the opportunity to practice.
   - Recommended actions for food purchasing, preparation and eating are low-cost in money, time, and effort to increase likelihood that consumers will adopt the chances.

6. Does the site ask users for information such as food intake and preferences, in order to customize the learning experience and increase user interaction?
   References: Bechtel-Blackwell, Block, Campbell, Lazarus, USDA-ERS
   - Assessment of a user's level of interest in a topic or their motivation to learn/change behavior is a factor for intent to change.

7. Does the site customize information and recommendations to individual users (like the MyPyramid.gov)?
   References: Brug 1999, Brug 2000, Block, Campbell, Macario, Schoenberge
   - Results from a randomized control trial of computer-tailored nutrition education interventions indicate that tailored feedback addressing attitudes, perceived social support and self-efficacy might be effective in inducing dietary changes.
   - Computer-tailored feedback proved to be more effective in motivating precontemplators to proceed towards dietary fat reduction than general information. Higher appreciation and use of the computer-tailored fat-feedback was found among respondents in contemplation than in other stages.
   - Respondents with low education were more positive about how interesting and how personally relevant the tailored letters were.
   - The findings of a pilot study suggest that computerized tailored self-help health promotion programs may be effective educational interventions for lower income and minority populations.
   - There is ample evidence that printed, computer-tailored nutrition education is a more effective tool for motivating people to change to healthier diets than general nutrition education. New technology is now providing more advanced ways of delivering tailored messages, e.g. via the World Wide Web (WWW).

8. Are users able to print a hard copy of individualized information, materials, and selected site content?
   Reference: Tisa, USDA-ERS
   - This may extend the learning experience for some users.

9. Are there printable materials available (e.g., fact sheets, recipes, posters, eating pattern messages on a variety of items) that reinforce the on-line messages, information, and content to extend the learning experience?
   Reference: USDA-ERS
   - Repeating nutrition education messages reinforce the learning experience.

10. Are there links to local resources where users can get more information or assistance (i.e., Farmers Market locations, WIC retailers, food assistance organizations)?
    References: Lazarus

11. Does the site minimize the amount and type of keyboarding (typing, mouse clicks) needed to move through and complete the educational activity?
    References: Bernard
    - Scrolling should be minimal; experts suggest limiting the number of "clicks" required to find information be less than 3 otherwise the user loses interest.

Type Style

1. Does the site use an effective combination of readable type styles and font sizes to get good contrast between the text and the heading and titles?
   References: Doak, NCI-Clear & Simple, Bernard
   - A 14 or 12-point type is optimal for on-line reading.
   - Use a font that your target audience can read. Studies do not consistently show that serif fonts (with little "feet" or extenders on the letters) are easier to read than non-serif fonts.
   - Evidence suggests that the most commonly used fonts tend to be equally legible at the 10-, 12-, and 14-point size. Comparing four sans serif fonts (Arial, Comic Sans MS, Tahoma, and Verdana) and four serif fonts (Courier New, Georgia, Century Schoolbook, Times New Roman) at a resolution of 1024 x 768 revealed no difference in effective reading (font accuracy/speed of reading) between font types.

2. Do the text and titles use capital letters only when capitals are grammatically needed?
   References: Doak, National Cancer Institute, Bernard
   - Text in "ALL CAPS" is difficult to read.

3. Does the site emphasize text by restrained use of italics, bolding, or other devises like contrast in size or color accents?
   References: Doak, National Cancer Institute, Bernard
   - Italics and bolding should draw attention to important words or phrases. Excessive use of these devises will clutter the site and distract the user.

4. Are lines of text an appropriate length for easy reading (no left to right or up and down scrolling needed to read text)?
   References: Bernard
   - The optimal text line length is dependent upon several factors. It is commonly recommended that shorter line lengths (about 11 words) should be used in place of longer, full-screen lengths. This is because longer line lengths require greater lateral eye movements, which make it more likely to lose one's place within the text. Longer line lengths are more tiring to read. Lines should be limited to lengths of around 40 to 60 characters, which is approximately 11 words per line.
   - People with poor reading ability performed better when the line length was approximately seven words. This suggests that young readers who have not mastered reading online, as well as readers who have vision deficits, may be most benefited by having shorter line lengths.

5. Is the wrapping of text around photos/graphics in awkward ways avoided?
   References: Bernard, McGee
   - It is recommended that white space surround graphics with a well-formulated title or text that supports the graphic.

6. Does the text avoid splitting words across two lines? When a sentence takes more than one line, does the break between lines reflect natural phrasing and avoid leaving a single word by itself on the second line?
   References: McGee
   - Splitting words often causes confusion about how to read them correctly. Use bulleted text or clear breaks to avoid confusion.

7. Is there enough contrast between the text and the background to read everything easily? That is, limited use of "reversed out" text (light-colored text on a dark back-ground)
   - References: Bernard
     Dark text on a light background is preferred for better reading comprehension, increased reading speed and less eyestrain.

Use of Color

1. Are the colors chosen appealing to the intended audience and free from problematic cultural significance?
   References: Bernard, Hofstede, Lynch, Marcus
   - Color has psychological effects on users that are different across cultures. Color can present opposite meanings, such as yellow for cowardice in the United States, and Grace and Nobility in Japan. Therefore, it is important to test colors with members of intended audience during formative research and design.

2. Is color used in a consistent and deliberate way to enhance the meaning and impact of the key messages and information?
   References: Lynch
   - Color can change the look of pages without adding graphics and can increase the readability of text, separate information on a page, and create impact.

Photos, Illustrations, Symbols

1. Are the photos, illustrations, symbols, patterns, and other visuals related to the information presented and used to reinforce key messages?
   References: Bernard, Schoenberger
   - Visuals should support the messages. Unrelated visuals will distract users from the message.

2. Are the people and activities shown in photos or illustrations contemporary and representative of the intended audience in their demographics, physical appearance, behavior, and cultural elements?
   References: Doak, Jantz, McGee
   - Photos and illustrations should be free from unwanted connotations or problematic cultural significance.

3. Are the photos, illustrations, and other images consistent in style for a uniform look?
   References: Bernard, McGee

4. Do the photos and illustrations have a high quality professional look?
   References: McGee
   The images themselves, their cropping and resolution should not be grainy, should be free from clutter and other distracting details.

5. Does the site avoid using cartoons, humor, and caricature (which may be misunderstood or offensive)?
   References: Bernard
   - Studies indicate that animated graphics show no advantage over non-animated graphics. Moreover, there is some evidence that animated graphics may even reduce text retention by serving to distract the user from attending to the textual information around the graphic. Studies have also been mixed about whether animated graphics are preferable to only text-based interfaces. It has been suggested that animated graphics should be kept at a minimum in order not to distract the user from the main points of the page, as well as to reduce the download time.
   - Importantly, graphics that look like banners should normally not serve as important links. This is because users tend to ignore animated graphic because they are generally associated with advertisements. The graphics that are presented should convey a simple message to portray the intended mood of the site or to catch the 'eye' of the user for a brief moment. Any animation that is presented should animate only for several seconds in order not to annoy and distract the user.

Non-English Site Development/Translations

1. Is the site available in other languages?
   References: Lazarus, Russo

2. Does the site clearly direct users to alternate versions in other languages?
   References: Bernard, Lazarus

3. Is translation done for meaning and ease of reading, avoiding awkwardness of literal translation from English?
   References: Lazarus

4. If a site exists in other languages, has it been evaluated using the evaluation criteria by a native speaker or someone proficient in the language and aware of the cultural sensitivities of the intended audience?
   References: Bernard, Lazarus, Marcus, Russo

Site Evaluation

1. Has formative research been conducted with intended audiences to determine initial conception of communications, education strategies, messages, topic selection, and site design elements?
   Reference: USDA-ERS, Lazarus, McGee, Bernard
   - Users tend to be far more satisfied and stay with websites that are designed for their use in mind. Formative research with the intended audience is critical for design of a site that reflects the needs, interests, learning styles, and cultural preferences of consumers.

2. Has the site been pre-tested with the intended audience for comprehension, ease of use, cultural acceptance, and interactivity?
   References: Kinzie, Bernard, McGee
   - Relevance to the user is critical for learning.

3. Has the site been reviewed by an appropriate professional resource prior to release (nutrition professionals, providers, website designers)?
   References: McGee
   - This will ensure that the site components are all working properly, the information presented is current and the site meets your criteria.

4. Has the site been evaluated post release and are the results of the evaluation available?
   References: Smith CE, Jantz, Barnard, Lazarus

5. Does the site include pre and post test assessment of user knowledge, attitude and behavior based on the learning objectives?
   References: Sternberger, Smith, Oeneman, Roberts, Kolasa
   - This feedback is an important element of effective nutrition education.

6. Does the site include programming that collects information (users, degree of interaction, length of time on site, accuracy of completing the activities, user satisfaction with site, etc) for site evaluation and for documenting nutrition education contacts?
   References: Bechtel-Blackwell, Block, Doshi
   - This type of information gathering can be used for site modifications that improve user satisfaction and increase counseling opportunities.

7. Is there a confidentiality of information statement that explains to the user how any information collected will be used?
   References: Kinzie
   - This should be included in the "how-to-use" site or site registration pages.

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